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| 10/028,278 | 12/28/2001 | Masashige Kawai | 122.1480 | 2862 |

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EXAMINER

CONNELLY CUSHWA, MICHELLE R

ART UNIT

PAPER NUMBER

2874

DATE MAILED: 02/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/028,278

Applicant(s)

KAWARAI, MASASHIGE

Examiner

Michelle R. Connelly-Cushwa

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 November 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Applicant's Amendment filed May 30, 2002 has been fully considered and entered.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 6; the claim recites the limitation "optical shutoff device" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim. Examiner suggests changing the dependency of claim 6 from claim 1 to claim 5 to overcome this rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Terahara (US 6,271,945 B1).

Regarding claim 5; Terahara discloses a wavelength division multiplexing apparatus in Figure 9 for use in an optical communication system shown in Figure 1, comprising:

- variable attenuators (58);
- an optical combiner (18) that combines optical outputs;
- an optical amplifier (8, see Figure 1) that optically amplifies an optical output of the optical combiner (18); and
- a controller circuit (36) that controls the attenuators (58).

Terahara does not specifically state that the controller circuit (36) is an optical shutoff device to shut off an input of an optical signal, however, the controller circuit (36) may optionally completely attenuate an optical signal with an attenuator (58), thereby shutting off an input of that signal into the optical combiner. Thus, one of ordinary skill in the art would have found it obvious to completely attenuate an optical signal with one of the attenuators based on a signal received from the control circuit (36) thereby shutting off the optical signal from an input to the combiner (18).

Claims 1, 2, 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terahara (US 6,271,945 B1) in view of Miyazaki (EP 0 844 751 A2).

Regarding claims 1 and 5; Terahara discloses a wavelength division multiplexing apparatus in Figure 9 for use in an optical communication system shown in Figure 1, comprising:

- variable attenuators (58);

- a plurality of optical signals of different wavelengths ($\lambda_1, \lambda_2, \lambda_3 \dots \lambda_m$) that are input into the attenuators (58);
- an optical combiner (18) that combines optical outputs of the attenuators (58);
- an optical amplifier (8, see Figure 1) that optically amplifies an optical output of the optical combiner (18);
- a spectrum analyzer unit (34) that measures the spectrum of the optical output and controls each of the plurality of attenuators so as to maintain the optical power level of each wavelength at a predetermined level in accordance with the result of the measurement; and
- a controller circuit (36) that controls the attenuators (58).

Terahara does not disclose an optical shutoff means for shutting off an input of an optical signal of a wavelength not used among the plurality of optical signals.

Miyazaki et al. discloses an optical transmitter for use in an optical communication system similar to the system disclosed by Terahara (see Figures 1 of both patents for the similarities between the systems), the transmitter comprising:

- a light-source unit (20) for generating an optical signal;
- a monitor unit (22) for monitoring a parameter depending on the wavelength of the optical signal;
- a judgment unit for determining as to whether or not the monitored parameter satisfies a predetermined condition; and

- a shut-off unit (26) for shutting off the optical signal in case the monitored parameter does not satisfy the predetermined condition (see Figure 3).

In the abstract, Miyazaki et al. teaches that by using the optical transmitter, it is possible to prevent crosstalk from occurring between WDM channels in the optical communication system. Therefore, one of ordinary skill in the art would have recognized the advantages of using the optical transmitter disclosed by Miyazaki et al. in any optical multiplexing system, including the system disclosed by Terahara. Thus, one of ordinary skill in the art would have it obvious to incorporate the optical transmitters disclosed by Miyazaki et al. as the optical transmitters (12) in the invention of Terahara to minimize or prevent crosstalk in the system.

Regarding claims 2 and 6; the shut-off unit (26) disclosed by Miyazaki et al. is an optical switch.

Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takehana et al. (JP 10-210008) in view of Iwano (JP 07-030520) and Miyazaki et al. (EP 0 844 751 A2).

Regarding claims 1, 4 and 5; Takehana et al. discloses a wavelength division multiplexing transmitting apparatus in Figure 1, comprising:

- a plurality of transponders (2-1 through 2-n) that respectively convert a plurality of optical signals of the same wavelength into a plurality of optical signals of different wavelengths (λ_1 - λ_n);

- an optical combiner (8) that combines optical output of the plurality of transponders; and
- an optical amplifier (9) that optically amplifies the optical output of the optical combiner (8).

Takehana et al. does not disclose a plurality of attenuators, a spectral analyzer unit (wavelength monitoring device), a controller that sets the amount of attenuation, or an optical shutoff means.

Iwano teaches the use of

- a plurality of attenuators (33);
- a spectral analyzer unit (40); and
- controllers (41) that set an amount of attenuation in a wavelength division multiplexing apparatus, comprising:
 - a plurality of optical transmitters (31) each having a different wavelengths;
 - a multiplexer (34);
 - and an amplifier (35).

Iwano teaches that the invention allows the output level of each signal light to be determined. One of ordinary skill in the art would have found it obvious to incorporate a plurality of attenuators, spectral analyzer unit, and controllers in the invention of Takehana et al. in the manner suggested by Iwano, i.e. by connecting a plurality of variable attenuators between the transponders (2-1 through 2-n) and the optical combiner (8), connecting a spectral analyzer unit after the amplifier (9), and connecting

Art Unit: 2874

the controllers between the spectral analyzer unit and the attenuators, to control the power level of the signals transmitted, as suggested by Iwano to control the output level of each signal light.

Miyazaki et al. discloses an optical transmitter for use in an optical communication system, the transmitter comprising:

- a light-source unit (20) for generating an optical signal;
- a monitor unit (22) for monitoring a parameter depending on the wavelength of the optical signal;
- a judgment unit for determining as to whether or not the monitored parameter satisfies a predetermined condition; and
- a shut-off unit (26) for shutting off the optical signal in case the monitored parameter does not satisfy the predetermined condition (see Figure 3).

In the abstract, Miyazaki et al. teaches that by using the optical transmitter, it is possible to prevent crosstalk from occurring between WDM channels in the optical communication system. Therefore, one of ordinary skill in the art would have recognized the advantages of using the optical transmitter disclosed by Miyazaki et al. in any optical multiplexing system. Thus, one of ordinary skill in the art would have it obvious to incorporate the optical transmitters disclosed by Miyazaki et al. as the optical transmitters in the inventions of Terahara, Iwano et al., or a combination thereof to minimize or prevent crosstalk in the systems.

Regarding claims 2 and 6; the shut-off unit (26) disclosed by Miyazaki et al. is an optical switch.

Regarding claims 3 and 7; the transponders include a plurality of optical-to-electrical converters that convert a plurality of optical signals of the same wavelength to a plurality of electrical signals and a plurality of electrical-to-optical converters that convert the plurality of electrical signals into a plurality of optical signals of different wavelengths in the invention of Takehana et al. Also, Takehana et al. includes a shutdown control circuit (4) that selectively shuts down the plurality of electrical-to-optical converters (see column 4, lines 17-34).


Response to Arguments

Applicant's arguments with respect to claims 1-7 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning the merits of this communication should be directed to Examiner Michelle R. Connelly-Cushwa at telephone number (703) 305-5327. Any inquiry of a general or clerical nature (i.e. a request for a missing form or paper, etc.) should be directed to the Technology Center 2800 receptionist at telephone number (703) 308-0956 or to the technical support staff supervisor at telephone number (703) 308-3072.

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MRCC
January 29, 2003


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